

Comment on the interpretation of Jäppinen et al concerning increased lung cancer incidence among board mill workers

In their article "Cancer Incidence of Workers in the Finnish Pulp and Paper Industry" [*Scand J Work Environ Health* 13 (1987) 197–202], Jäppinen and his co-workers reported an increased risk for lung cancer among board mill workers. They discussed exposure to asbestos as a possible explanation. As one of the sources for asbestos exposure they pointed out the brake discs of the slitting machines.

However, our experience in the paper industry in Sweden does not support that theory. In 1979 we measured fibers in the air close to several reeling and glazing machines with brake discs of asbestos in a board mill. The fiber concentrations in the air varied between 0.04 and 0.07 fibers/cm³. The proportion of asbestos among these fibers was not estimated. The total dust level varied between 0.1 and 1.3 mg/m³. According to this limited investigation we do not think that asbestos exposure from brake discs is of the extent that it could explain the observed increased risk for lung cancer among the board mill workers.

In Sweden asbestos has been used as an additive to increase the strength of different paper qualities (1). Therefore we think that a more plausible explanation for the increased risk among the Finnish board mill workers is possible exposure to asbestos used as an additive in the paper.

Furthermore, there are other aspects of the confounding influence of asbestos in the paper industry. In a register study Järvholm et al (2) found an increased risk for malignant mesothelioma among Swedish papermill workers. The cases were traced and many appeared to be in maintenance personnel. They were probably exposed to asbestos when repairing pipes, ventilation pipes, and machines covered with asbestos. Hence we are surprised that Jäppinen et al did not find a single case of malignant mesothelioma in their cohort of maintenance workers.

References

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increased among workers in the paper industry]. *Läkartidningen* 82 (1985) 3892–3894.

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Author's reply

On behalf of all the authors, I thank Dr Thorén and his co-workers for their valuable remarks concerning our article. However, obviously some details need clarification. To be exact, we did not say that asbestos is the cause or even the main suspect as the etiologic agent of lung cancer in our cohort. We merely stated that there have been sources of asbestos in the mills under study — a fact which is possibly not well known by many readers of the article. According to our own measurements, we agree that only minimal amounts of asbestos have emerged from the brake discs of the slitting machines. Furthermore, asbestos has never been used as a paper additive in the mills of our study, in contrast to its use in the Swedish mills mentioned.

As there have been some other carcinogenic compounds in use in paper and board mills, their role must be evaluated, too. In the future, we plan to re-check the histological types of lung cancer occurring in the other subcohorts of our study in order to eliminate the possibility of misclassification, but, indeed, there was not a single case of mesothelioma among the 40 cases of lung cancer in the board mill subcohort, which had the highest excess of this cancer (SIR 222). In addition we are planning a case-referent study to analyze further the risk of lung cancer in the paper and board industry.

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